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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,728	08/29/2003	Hiroyuki Saito	00862.023195.	7665

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EXAMINER

MRUK, GEOFFREY S

ART UNIT	PAPER NUMBER
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2853

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/650,728

Applicant(s)

SAITO ET AL.

Examiner

Geoffrey Mruk

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 8-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18, 19, 23 and 25 is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-17, 20-22 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10-13, 20, 22, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10 and 20 recite the limitation "further comprising first and second motors" in lines 1 and 2. This limitation renders the claim vague and indefinite since one of ordinary skill in the art would not be able to ascertain the number of motors in the printing apparatus.

Claims 11-13, 22, and 24 are rejected under 35 U.S.C. 112, second paragraph, for being dependent upon a claim with the above addressed 35 U.S.C. 112 problems (i.e. claims 10 and 20).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 8, 9, 14-17, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiramatsu (US 6,015,202).

With respect to claim 1, Hiramatsu discloses a printing apparatus (Fig. 1) having a printhead (Fig. 1, element 1) for printing and a printing controller (Fig. 8, element 102) for feedback-controlling driving of a motor (Fig. 8, element 100A) based on a first driving pattern (Column 11, lines 64-66; Fig. 8, element 105), the printing controller comprising:

- control information (Fig. 8, element 104) generation means for generating control information for a driving torque of the motor (Fig. 8, element 105), while the motor is driven on the basis of a the first driving pattern;
- comparison means (Fig. 8, element 102) for comparing the control information and a threshold for determining an overload on driving of the motor; and
- setting means (Fig. 8, element 102b) for setting a second driving pattern, instead of the first driving pattern, based on a comparison result of said comparison means (Column 12, lines 53-65):

Also, Hiramatsu discloses “the current to be supplied to the sheet feed motor 20 can be switched to one of a large, medium or small current value and when the sheet feed motor is operatively connected to the sheet feed output gear 34, the large current is supplied to the motor since a strong voltage torque is required” (Column 15, lines 12-14) and “Furthermore, so far the step motor has been described as being controlled by switching the PWM value, but it is possible to employ other suitable driving methods such as the driving method by controlling the current. In addition, so far the step motor driving and the closed-loop driving are used for the motor 100 for driving the recording

Art Unit: 2853

head scanning carriage 2, but they may be also used for a sheet feed motor which is required to attain a high degree of resolution or whose driving noise must be suppressed as much as possible" (Column 23, lines 7-15).

With respect to claim 2, Hiramatsu discloses detection means (Fig. 8, element 103) for detecting feedback information for driving of the motor, wherein said control information generation means (Fig. 8, element 104) updates the control information in order to compensate for a deviation between the first driving pattern and the feedback information detected by said detection means (Column 12, lines 43-57).

With respect to claim 3, Hiramatsu discloses the control information includes a voltage value PWM-controlled to be applied for driving the motor (Fig. 8, element 104).

With respect to claim 4, Hiramatsu discloses said setting means (Fig. 8, element 102b) sets the second driving pattern to the first driving pattern again at a timing when the overload on the motor is canceled or predicted to be canceled (Column 12, lines 53-57).

With respect to claim 5, Hiramatsu discloses storage means (Fig. 8, element 102c) for storing at least one of the first and second driving patterns as a driving pattern generated in advance, wherein said setting means (Fig. 8, element 102b) can select and set a driving pattern stored in said storage means (Column 12, lines 53-57).

With respect to claim 8, Hiramatsu discloses when the control information (Fig. 8, element 104) exceeds the threshold from the comparison result of said comparison means, said setting means sets a lower-velocity driving pattern lower than the first driving pattern as a driving pattern for driving the motor (Column 12, lines 53-57).

With respect to claim 9, Hiramatsu discloses when the control information (Fig. 8, element 104) does not exceed the threshold from the comparison result of said comparison means, said setting means sets a higher-velocity driving pattern higher than the first driving pattern as a driving pattern for driving the motor (Column 12, lines 21-31).

With respect to claim 14, Hiramatsu discloses printing data generation means for scanning a carriage supporting the printhead relative to a printing medium and converting information transmitted from an external device into printing data complying with an arrangement of the printhead (Column 7, lines 55-67; Column 8, lines 1-2).

With respect to claim 15, Hiramatsu discloses the printhead comprises an ink-jet printhead which prints by discharging ink (Column 7, line 65).

With respect to claim 16, Hiramatsu discloses the printhead discharges ink by using heat energy, and comprises an electrothermal transducer for generating heat energy to be applied to ink (Column 8, lines 4-8).

With respect to claim 17, Hiramatsu discloses a printing apparatus control method of driving (Figs. 10, 11), on the basis of feedback control, a printing apparatus (Fig. 1), having a printhead for printing and a printing controller for feed-back controlling driving of a motor based on a first driving pattern (Column 11, lines 64-66; Fig. 8, element 105), said method comprising:

- a control information (Fig. 8, element 104) generation step of generating control information for driving torque (Fig. 8, element 105) of the motor, while the motor is driven based on a the first driving pattern;

Art Unit: 2853

- a comparison step (Fig. 8, element 102) of comparing the control information and a threshold for determining an overload on driving of the motor; and
- a setting step (Fig. 8, element 102) of setting a second driving pattern, instead of the first driving pattern, on the basis of a comparison processing result of the comparison step (Column 12, lines 53-65).

Also, Hiramatsu discloses "the current to be supplied to the sheet feed motor 20 can be switched to one of a large, medium or small current value and when the sheet feed motor is operatively connected to the sheet feed output gear 34, the large current is supplied to the motor since a strong voltage torque is required" (Column 15, lines 12-14) and "Furthermore, so far the step motor has been described as being controlled by switching the PWM value, but it is possible to employ other suitable driving methods such as the driving method by controlling the current. In addition, so far the step motor driving and the closed-loop driving are used for the motor 100 for driving the recording head scanning carriage 2, but they may be also used for a sheet feed motor which is required to attain a high degree of resolution or whose driving noise must be suppressed as much as possible" (Column 23, lines 7-15).

With respect to claim 21, Hiramatsu discloses setting means (Fig. 8, element 102b) sets the second driving pattern, which generates a greater driving torque than the torque generated based on the first driving pattern, instead of the first driving pattern (Column 23, lines 7-21).

Allowable Subject Matter

Claims 18, 19, 23, and 25 allowed.

The following is a statement of reasons for the indication of allowable subject matter: The primary reasons for allowance for claims 18, 23, and 25 is that applicant's claimed invention includes a printing apparatus having first and second motors used for printing and a printing controller for feedback-controlling driving of the first motor based on a first driving pattern and open-loop controlling driving of the second motor based on the first driving pattern, the printing controller comprising: control information generation means for generating control information for a driving torque of the first motor while the first motor is driven based on of the first driving pattern. It is this limitation, expressed in the claimed combination not found, taught, or suggested in the prior art, that makes these claims allowable over the prior art.

The primary reasons for allowance for claim 19 is that applicant's claimed invention includes a method of controlling a printing apparatus having first and second motors used for printing and a printing controller for feedback controlling driving of the first motor based on a first driving pattern and open-loop controlling driving of the second motor based on the first driving pattern. the method comprising: a control information generation step of generating control information for a driving torque of the first motor, while the first motor is driven based on the first driving pattern. It is this limitation, expressed in the claimed combination not found, taught, or suggested in the prior art, that makes these claims allowable over the prior art.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey Mruk whose telephone number is 571 272-2810. The examiner can normally be reached on 7am - 330pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2853

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GSM
3/22/2006

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STEPHEN MEIER
SUPERVISORY PATENT EXAMINER